CLAIMS

What is claimed is:

1. A method for adaptive load balancing comprising the steps of:

monitoring operating conditions of a server;

determining, based on the operating conditions, whether to send a behavior modification hint to one or more clients that are served by the server;

generating the behavior modification hint based on the operating conditions; and

sending the behavior modification hint to the one or more clients.

2. The method of Claim 1, wherein the server is an AAA server and the one or more clients are AAA clients.

3. The method of Claim 2, wherein the step of sending the behavior modification hint comprises sending a RADIUS message containing the behavior modification hint in a vendor specific attribute within the RADIUS message.

4. The method of Claim 1, wherein the step of sending the behavior modification hint comprises sending a particular message containing the behavior modification hint to a particular client of the one or more clients, where the particular message is a response message to a request message sent by the particular client to the server.

5. The method of Claim 1, wherein the step of monitoring the server's operating conditions comprises monitoring at least one of CPU usage percentage, memory usage percentage, network conditions, and number of processes running.

6. The method of Claim 1, further comprising the step of determining the one or more clients to which to send the behavior modification hint based on a predefined list of clients.

7. The method of Claim 1, further comprising the step of determining the one or more clients to which to send the behavior modification hint based on a network device group.

8. The method of Claim 1, further comprising the step of determining the one or more clients to which to send the behavior modification hint based on operating conditions for the server relative to each of the one or more clients.

9. The method of Claim 1, wherein the server is one of multiple servers providing a particular service; the behavior modification hint comprises a suggestion of one or more alternative servers; and the method further comprises the step of determining the one or more alternative servers based on operating conditions for each server of the one or more alternative servers.

10. The method of Claim 9, wherein the step of determining the one or more alternative servers further comprises the server obtaining the operating conditions of the one or more alternative servers over a network.

11. The method of Claim 1, wherein the step of determining when to send a behavior modification hint is based on network conditions of one or more networks providing communication between the server and the one or more clients, wherein the network conditions comprise at least one of:

a ping time from the server to a computer on the one or more networks;

a round trip time of a message sent to a particular client;

a quality of service guaranteed to one or more clients; and

operating conditions of a device on the one or more networks used to route messages.

12. The method of Claim 1, wherein the step of sending a behavior modification hint further comprises the steps of:

sending a code to the one or more clients; and

generating the code based on why it was determined to send a message to the one or more clients.

13. The method of Claim 1, wherein the step of determining when to send a behavior modification hint is based on a scheduled event related to the server.

14. The method of Claim 13, wherein the scheduled event related to the server is selected from a group consisting of server shutdown, server maintenance, and server backup.

15. The method of Claim 1, wherein the step of determining when to send a behavior modification hint is based on a server detecting that a particular client has sent one or more retry messages, wherein a retry message is a second or subsequent message corresponding to a particular request for service from the particular client.

16. A method for adaptive load balancing comprising the steps of:

receiving a behavior modification hint from a first server providing a first service, wherein the behavior modification hint comprises the first server's operating conditions; and

altering one or more functional aspects of a client based on the behavior modification hint, wherein the one or more functional aspects of the client comprise at least one of:

a configured timeout value for the first server for the first service and

a preferred server setting for the first service.

17. The method of Claim 16, wherein the step of receiving a behavior modification hint comprises receiving a particular message containing the behavior modification hint from the first server, where the particular message is sent by the first server in response to a request message sent by the client to the first server.

18. The method of Claim 16, wherein the step of altering one or more functional aspects of a client comprises altering the configured timeout value for the first server for the first service.

19. The method of Claim 18, further comprising the step of generating a new timeout value based on the first server's operating conditions.

20. The method of Claim 16, wherein the behavior modification hint contains a list of one or more alternative servers and the step of altering one or more functional aspects of a client comprises altering the preferred server setting for the first service based on the list of one or more alternative servers.

21. The method of Claim 20, wherein a second server is one of the servers in the list of one or more alternative servers and the method further comprises the step of connecting to the second server.

22. The method of Claim 21, further comprising the step of generating a new timeout value based on the second server's operating conditions.

23. The method of Claim 16, wherein the step of receiving a behavior modification hint further comprises the steps of:

receiving a RADIUS message containing the behavior modification hint in a vendor specific attribute within the RADIUS message; and

interpreting the behavior modification hint contained within the RADIUS message.

24. A computer-readable medium carrying one or more sequences of instructions for adaptive load balancing, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

monitoring operating conditions of a server;

determining, based on the operating conditions, whether to send a behavior modification hint to one or more clients that are served by the server;

generating the behavior modification hint based on the operating conditions; and

sending the behavior modification hint to the one or more clients.

25. An apparatus for adaptive load balancing, comprising:

means for monitoring operating conditions of a server;

means for determining, based on the operating conditions, whether to send a behavior modification hint to one or more clients that are served by the server;

means for generating the behavior modification hint based on the operating conditions; and

means for sending the behavior modification hint to the one or more clients.

26. An apparatus for adaptive load balancing, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor;

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

monitoring operating conditions of a server;

determining, based on the operating conditions, whether to send a behavior modification hint to one or more clients that are served by the server;

generating the behavior modification hint based on the operating conditions; and

sending the behavior modification hint to the one or more clients.

27. A computer-readable medium carrying one or more sequences of instructions for adaptive load balancing, which instructions, when executed by one or more processors, cause the one or more processors to carry out the steps of:

receiving a behavior modification hint from a first server providing a first service, wherein the behavior modification hint comprises the first server's operating conditions; and

altering one or more functional aspects of a client based on the behavior modification hint, wherein the one or more functional aspects of the client comprise at least one of a configured timeout value for the first server for the first service and a preferred server setting for the first service.

28. An apparatus for adaptive load balancing, comprising:

means for receiving a behavior modification hint from a first server providing a first service, wherein the behavior modification hint comprises the first server's operating conditions; and

means for altering one or more functional aspects of a client based on the behavior modification hint, wherein the one or more functional aspects of the client comprise at least one of a configured timeout value for the first server for the first service and a preferred server setting for the first service.

29. An apparatus for adaptive load balancing, comprising:

a network interface that is coupled to a data network for receiving one or more packet flows therefrom;

a processor;

one or more stored sequences of instructions which, when executed by the processor, cause the processor to carry out the steps of:

receiving a behavior modification hint from a first server providing a first service, wherein the behavior modification hint comprises the first server's operating conditions; and

altering one or more functional aspects of a client based on the behavior modification hint, wherein the one or more functional aspects of the client comprise at least one of a configured timeout value for the first server for the first service and a preferred server setting for the first service.